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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,738

12/29/2005

Chang-Tae Kim

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EXAMINER

RAO, SHRINIVAS H

ART UNIT

PAPER NUMBER

2814

NOTIFICATION DATE

DELIVERY MODE

01/02/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto-sl@huschblackwell.com

Office Action Summary	Application No. 10/562,738	Applicant(s) KIM ET AL.	
	Examiner Steven H. Rao	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/29 2/005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/29/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledgement is made of papers filed claiming priority from PCT/KR2004/001625 filed on July 03, 2005 which itself claims priority from Korean Patent Application Nos. 10-2003-0045059 filed on 07/03/2003, 10-2003-0055907 filed on 08/12/2003 and 10-2003-0070758 filed on 10/10/2003.

Information Disclosure Statement

The IDS filed on 12/ 29 2/005 has been partially considered. The Korean reference (2003-502060-A) does not have an English language translation and therefore has not been considered. The two Japanese references herein are ONLY considered to the extent that can be understood by the English language Abstract.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwak et al. U.S. Printed Patent Publication No. 2004/0013148 (now USP 7,151,786, herein after Kwak) and in view of Cervanteas et al. (U.S. Patent No. 6,379,985 herein after Cervantes).

With respect to claim 1 Kwak describes a III-nitride compound semiconductor light-emitting device having a plurality of III-nitride compound semiconductor

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layers that are epitaxially grown using a substrate: wherein the plurality of III-nitride compound semiconductor layers include an active layer generating light by recombination of electrons and holes and containing gallium and nitrogen (Kwak fig. 4 # 52 etc.) , an n-type $\text{Al}(x)\text{In}(y)\text{Ga}(1-x-y)\text{N}$ layer epitaxially grown before the active layer is grown (Kwak fig. 4 # 549) , and an n-type electrode electrically contacting with the n-type $\text{Al}(x)\text{In}(y)\text{Ga}(1-x-y)\text{N}$ layer (Kwak fig. 4 # 51) , and wherein the n-type $\text{Al}(x)\text{In}(y)\text{Ga}(1-x-y)\text{N}$ layer has a surface which is exposed by etching (Kwak figs. 5 A and 5 B) .

Kwak does not specifically mention that the exposed surface includes a region for scribing and breaking the device and a region for contact with the n-type electrode, and the surface of the region for scribing and breaking the device is roughened.

However, Cervantes, an patent from the same filed of endeavor, describes in col.4 lines 52-55,etc. the exposed surface includes a region for scribing and breaking the device and a region for contact with the n-type electrode, and the surface of the region for scribing and breaking the device is roughened in Kwak's device the motivation for the substitution is to provide methods of cleaving II-V nitride films formed on c-face sapphire substrates and and for forming facets on substrates. (Cervantes col.2 lines 25 to 33).

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It is noted that the recitation "is roughened" is a product by process limitation for which no patentable weight can be given in a device claim.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Cervantes's the exposed surface includes a region for scribing and breaking the device and a region for contact with the n-type electrode, and the surface of the region for scribing and breaking the device is roughened in Kwak's to provide methods of cleaving II-V nitride films formed on c-face sapphire substrates and also for forming facets on substrates.

With respect to claim 2 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 1, wherein the roughened surface of the region for scribing and breaking the device is formed by dry etching. (Cervantes col. 5 line 34)

With respect to claims 3 and 6 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 2, wherein a mask pattern is used in the dry etching. (Cervantes col.5 line 42)

With respect to claims 4, and 5 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 3, wherein surface gratings are formed by means of the mask pattern, the surface area of each of the surface

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gratings is in a range of 1.52 μm to 4 μm . and height of each grating is)) 0.5 to 1.5 μm .

It is noted that claims 4 and 5 recite mere size modification of known elements of III-nitride LED , since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In *Re Rose* 105 USPQ 237 (CCPA 1955).

With respect to claims 7 to 9 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 6, wherein protrusions are formed by means of the mask pattern and each of the protrusions has a conical shape and wherein the diameter of the bottom of the conical shape is in the range of 1 μm to 10 μm and the height of the conical shape is in the range of 1 μm to 10 μm .

It is noted that claims 7 to 9 recite mere geometrical shape and/or size modification of known elements of III-nitride LED , since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In *Re Rose* 105 USPQ 237 (CCPA 1955).

With respect to claim 10 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 1, wherein the roughened surface of the region for scribing and breaking the device is formed by wet etching. (Cervantes col. 5 lines 30-35).

With respect to claim 11 Kwak describes. The III-nitride compound semiconductor light-emitting device of claim 10, wherein the wet etching is a photo electrochemical etching.(Cervantes col.5 33-34).

With respect to claim 12, Kwak describes the III-nitride compound semiconductor light-emitting device of claim 11, wherein KOH solution is used as an etching solution in the photo electrochemical etching. (well known to use KOH solution in photoelectron chemical etching).

With respect to claim 13 Kwak describes the III-nitride compound semiconductor light-emitting device of claim 3, wherein the dry etching is performed after the region for contact with the n-type electrode is etched.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.30-5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wael M Fahmy/

Supervisory Patent Examiner, Art
Unit 2814

/Steven H Rao/

Examiner, Art Unit 2814